REMARKS

The claims have been amended to more clearly define the invention as disclosed in the written description. In particular, the claims have been amended for clarity.

The Examiner has rejected claims 1-7, 11, 13-19, 25 and 26 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,111,960 to Aarts et al. The Examiner has further rejected claims 12 and 24 under 35 U.S.C. 103(a) as being unpatentable over Aarts et al. in view of U.S. Patent 6,606,388 to Townsend et al. Further, the Examiner has rejected claims 8-10 and 20-22 under 35 U.S.C. 103(a) as being unpatentable over Aarts et al. in view of U.S. Patent 5,509,080 to Roberts.

The Aarts et al. patent discloses a circuit, audio system and method for processing signal, and a harmonics generator, in which a frequency band of an audio signal is selected, harmonics of the selected signal are generated by a harmonics generator, and the harmonics are scaled based on a level of the audio signal in the detected frequency band.

As noted in MPEP §2131, it is well-founded that "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California,* 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Further, "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v.*

Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Claim 1 includes the limitation "dividing, using a segmenting unit, the filtered audio signal of the selected frequency range into time segments thereby forming filtered audio signal time-segments, said filtered audio signal time-segments collectively being a replica of the filtered audio signal". While the Examiner identifies this as element 240 in Fig. 5, and refers to col. 7, lines 15-19, Applicant would like to point out that element 240 is a zero-crossing detector. As stated by Aarts et al., at col. 7, lines 15-19:

> "Any conventional zero-crossing detector can be used for the zero-crossing detector 240, for instance, a limiter, etc. In case a limiter is used, the output signal of such a limiter would be a square-wave with a period of 2 zero crossings."

Quite obviously, the output from the zero-crossing detector is a detector signal indicating zero crossings, not the filtered audio signal divided into time segments as specifically set forth in claim 1, particularly since the filtered audio signal time-segments collectively are a replica of the filtered audio signal.

The Examiner now states "The zero-crossing detector of Aarts receives the frequency selected audio signal, then filters the signal to produce a square wave representative of the zero crossings of the audio signal. This is a filtering of the audio signal that produces a divided square wave related to the zero-crossings of the audio signal. The square wave signal is a filtered result of the input audio signal to detector 240." In support of

the above, the Examiner adds "The present claim language does not disclose wherein the filtered audio signal segments are replicas of the filtered audio signal, therefor the zero-crossings detection of Aarts anticipates the result of a time segmented audio signal as presented by the claim language."

In response thereto, although Applicant believes that claim 1 is clear, Applicant has nonetheless added the limitation "said filtered audio signal time-segments collectively being a replica of the filtered audio signal" which Applicant believes should clearly distinguish the dividing step of claim 1 (and the dividing means of claim 13) from the zero-crossing detector of Aarts.

Further, claim 1 includes the limitation "scaling, using a scaling unit, each of the filtered audio signal time-segments such that the scaled filtered audio signal time-segments collectively re-form the filtered audio signal with an increased sound level". First, element 241 identified by the Examiner is not a scaling means, but rather, a waveform generator. As stated by Aarts et al. at col. 6, line 63 to col. 7, line 15:

> "a waveform generator 241 for generating a waveform based on the detected zero crossings, the waveform having an amplitude related to the detected level supplied by the detecting means 28. Preferably, the amplitude of the waveform is made proportional to the detected level. For this purpose the waveform generator 241 is coupled to both zero-crossing detector 240 and the detecting means 28. By generating a waveform in response to the detected zero crossings, it is possible to generate harmonics having a predetermined and constant amplitude relation with each other. By selecting the appropriate waveform, it is possible to select which harmonics are generated and which not, and

> even which amplitude relation there should be. For example, a square waveform only comprises odd harmonics of a predetermined magnitude, whereas a triangular waveform also comprises odd harmonics but with different magnitudes. However, a sawtooth waveform comprises both odd and even harmonics. By scaling the generated waveform in response to the detected level, the generated harmonics will fit in with the audio signal."

It should be apparent that waveform generator 241 does not scale the amplitude of filtered audio signal segments. Rather, waveform generator 241 **generates** a waveform signal (e.g., a sawtooth waveform) whose frequency is controlled by the detected zero crossings of the filtered audio signal, and whose amplitude is controlled by the detected amplitude of the filtered audio signal.

The Examiner now states "The Examiner disagrees and maintains the position that the waveform generator generates scaled output signals with respect to the zero-crossing detector 240 and level detector 28."

Applicant submits that while the output signal of the waveform generator may be scaled in response to the detected level (of the signal at the output of low-pass filter 20), this has nothing to do with the claim limitation which specifically states "scaling, using a scaling unit, each of the filtered audio signal time-segments such that the scaled filtered audio signal time-segments collectively re-form the filtered audio signal with an increased sound level", i.e., scaling each of the time segments of the filtered audio signal.

Claim 12 (and similarly claim 24) includes the limitation "delaying, in a delay unit, any signal components of the audio

signal in frequency ranges other than said selected frequency range."

The Townsend et al. patent discloses a method and system for enhancing audio signals, in which, as noted by the Examiner, a compensating delay 226 is used to delay any signal components of the audio signal in frequency ranges other than said selected frequency range. However, Applicant submits that Townsend et al. does not supply that which is missing from Aarts et al., i.e., "dividing, using a segmenting unit, the filtered audio signal of the selected frequency range into time segments thereby forming filtered audio signal time-segments, said filtered audio signal time-segments collectively being a replica of the filtered audio signal" and "scaling, using a scaling unit, each of the filtered audio signal time-segments such that the scaled filtered audio signal time-segments collectively re-form the filtered audio signal with an increased sound level".

The Roberts patent discloses a bass clipping circuit, in which a pair of oppositely poled diodes is arranged in "the output leg of the low frequency network 24" (col. 2, line 50). While Aarts et al. notes that these diodes "clamp the voltage developed across the feedback portion of the potentiometer 32" (col. 2, lines 59-61, Applicant would like to point out to the Examiner that the potentiometer 32 does not adjust "the amplitude of the combined audio signal if the threshold is exceeded". Rather, the diodes affect the gain of operational amplifier 15. However, Applicant submits that Roberts does not supply that which is missing from

Aarts et al., i.e., "dividing, using a segmenting unit, the filtered audio signal of the selected frequency range into time segments thereby forming filtered audio signal time-segments, said filtered audio signal time-segments collectively being a replica of the filtered audio signal" and "scaling, using a scaling unit, each of the filtered audio signal time-segments such that the scaled filtered audio signal time-segments collectively re-form the filtered audio signal with an increased sound level".

In view of the above, Applicant believes that the subject invention, as claimed, is neither anticipated nor rendered obvious by the prior art, either individually or collectively, and as such, is patentable thereover.

Applicant believes that this application, containing claims 1-27, is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

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